THE MARTIN STAR

August 1943

CURTIS W. MILLER, *Chief Engineer, The Glenn L. Martin-Nebraska Company*

"WE'VE got to keep one jump ahead of those buzzards across the water, for if we don't—well, I hate to think what would happen to our airplanes and our men who are flying them."

In brief, that summarizes the chief principle of aircraft engineers, and it is the theory under which the Martin-Nebraska Company's Chief Engineer, Curtis W. Miller, operates his department.

Curt Miller ("and be sure you don't spell that with a 'K'") has under his direction more than 450 men and women whose job it is to aid in the constant drive for perfection in design. With definite changes in the Martin-Nebraska Company's program in the offing, Miller is faced with a tremendous job of engineering . . . a job that he knows he and his assistant can lick.

Born in Cleveland on November 25, 1902, Curt spent many Saturdays and much of his time during the summer months helping his father run his grocery store. At least, he "worked in the store when I couldn't sneak away for a little baseball or golf caddying."

Educated in the Cleveland schools, young Miller used to watch the big bombers that were built in the Glenn L. Martin Company's Cleveland plant flying over town. They fascinated him, and he decided to look for a job at the Martin plant.

Consequently, in 1921, Curt found a job with the Martin Company. At that time, they were working on an all-plywood night mail plane, the first of its kind ever built. The job lasted only during the summer months, and so Curt decided to finish his schooling that winter. The next summer, he obtained a job with General Electric at Nela Park, but a year-and-a-half later he was back with Martin.

"There were some pretty good men working for Martin along about that time," Miller recalled recently. "There was Donald Douglas, for instance. Today, he's president of the Douglas Aircraft. And then there were Larry Bell, of Bell Aircraft, and Dutch Kindleberger who today is president of North American. As I recall it, Douglas was chief engineer, Kindleberger was in charge of the wing group on the night mail plane project, and Bell was one of the company's officials. They were a pretty smart bunch of boys."

In 1929, when Martin moved his scene of operations to Baltimore, Miller went along.

"Call it homesickness or lonesomeness or whatever you want, but the fact of the matter is, I stayed in Baltimore just eleven weeks, and then I packed up my belongings and went home," Miller said in recalling his early connections with the Martin Company. "One reason for my leaving—and a darn good one, I might add—was the fact that my wife, who was teaching school in Cleveland, had stayed behind.

"But, whatever the reason, I did go home, and right back into the same factory building I had left only a short time before it had been taken over by Lakes Aircraft Company, successors in Cleveland to the Martin Company."

In 1936, Miller returned to Baltimore. This time he brought his wife and year-old daughter.

Call it coincidence if you like, but Miller's first job after his return to Baltimore was in the wing group, then under the direction of G. T. Willey, who is today the Nebraska Company's Vice-President and General Manager—and once again, Miller's boss.

Later, Miller became group engineer in charge of wings and tail surfaces on the B-26 project. Then, in rapid succession, he became a group engineer on the PBM-3 project, manager of the development group, resident engineer in Baltimore for the Nebraska Company, project engineer on the B-26, and finally in June of 1942 he was named Chief Engineer for The Glenn L. Martin-Nebraska Company.

In brief, here are some of the jobs that come under Miller's direction: dissemination of engineering information from Baltimore to our various subcontractors, tool designing, engineering laboratories, the photo-art department, production engineering and structures.

In the next few months, Miller and his aides will have their hands full. There will be hundreds of engineering problems coming up, and all of them must be met and answered correctly.

THE MARTIN STAR

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To the Ladies!

IT was just two years ago this month that a handful of women walked into the Finishing Department and went to work, marking the first entrance of the fair sex into productive work at The Glenn L. Martin Company.

What a lot has been crowded into those twenty-four months! Growing thousands of women have replaced men badly needed in the Armed Services. Millions of woman-hours have sent bombers to the warfronts to strike at Axis armies, navies and cities. Today, a third of all the artisans in this great forge of Democracy are women, and the porportion is growing steadily.

One must smile a bit at the memory of skeptics who watched the petticoat parade into the shops a couple of years back. Some hard-bitten foremen shook their heads ominously. This, they said, was a man's job; the girls couldn't master the exacting work of aircraftsmen. But they did, and how they did! The nimble fingers took in parts production, machines, drilling, riveting, assembly work, electrical work and a host of other crafts. Soon the women were moving into the more advanced work of assembly, and even took up work in Final Assembly. Women engineers moved in by the score; women research and laboratory experts. Women inspectors were placing the safeguards of exactitude on all things done.

It has been a remarkable evolution, a splendid evolution. The skeptics have long since thrown up their hands and have put out the welcome mats to the girls. And when the final score of this war is added up, some of the brightest figures will be supplied by our women, young and old, who have backed up their men in a time of crisis.

Common denominator of the service of these fair artisians has been patriotism—the desire to do their part for victory. But there have been other advantages. Many women whose breadwinners have been called to bear arms have found themselves faced with the necessity of supporting families. The fact that they could find here the same wages as their men-folk answered the problem. Aircraft manufacture was ideal for them—far better than work in other factories. They handled light materials, finely fabricated—worthy of their delicate touch. There is hardly an art in the plants they have not been able to master.

And there is an undeniable thrill for them in the very nature of their contributions. One cannot look aloft and see the powerful bombers, pregnant with destruction for the enemies of civilization, without a feeling of satisfaction.

Our girls have asked no quarter in their fight. They have not sought the easy way. They asked for a man's job, and a man's job they are doing, at a man's pay. True, everything possible has been done to ease the strain on feminine muscles—little tricks of tool-design to take up the burden and reduce fatigue.

There are true heroines among these women—mothers who put every ounce of their energies behind their fighting sons and husbands.

The nation must not and will not forget what these fine Americans have done. Axis brutality long since made combatants of women and children, and Martin women have accepted the gauge of combat in the way they can serve best.

And when the war is over and we can live again in peace, many of these heroines will return to their homes while their men-folk go again to support them. Some, whose responsibilities are not so great, may choose to make careers for themselves in aircraft.

So, now, a toast! To the ladies, God bless 'em!

August 1943 ★ **EDITORIAL STAFF** ★ **Vol. II No. 7**

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Editorial Offices, The Glenn L. Martin-Nebraska Company

MARAUDERS OVER SICILY—*Three B-26 Martin Marauders of the U. S. Army Air Forces fly over an airport at Alghero, Sicily, during a raid by Allied aircraft on the airdrome recently. Note bomb bursts on airfield runways, buildings, and among dispersed enemy aircraft. British official photo.*

Five Who Came Back

The following account of an adventure of the crew of a Martin Marauder on a raid in North Africa is one of the truly vivid stories to come out of that theatre of war. It reached this country in a letter written by J. W. Sappenfield, a Martin technician attached to the Army Air Forces in North Africa.

EVERY day and every night, while ordinary mortals go about their work, sleep and go about their work again, other ordinary people, different only in the airmen's uniform they wear, go out on their wings of metal to fight and die. These are the men whose skill and courage converts America's productive capacity into that greatest of all modern weapons — airpower. Without them the work and creative genius of the nation for which they fight would go to nought.

Much has been written during this war about flyers and flying; playing up the unusual, the freak incidents, the amazing achievements. But this is the story of just one mission—one of many that could be written about each day—of a counter shipping mission in the Mediterranean area by Martin B-26 Marauder bombers.

Each successful bombing mission makes heroes out of the men who participated. For the enemy fights hard and skillfully and only the utmost in effort can bring victory. This is as true of each mission as it is of an entire war. Most of the air heroes of this war will never be heard of, but the five heroes of this story have all been recommended for decorations and are expected to receive them shortly.

The pilot, First Lieutenant Charles R. Meyers, Jr., of Wayne, Pa., and the co-pilot, First Lieutenant Bennet H. Grimm, of Lumberport, W. Va., have been recommended for the Distinguished Flying Cross. Captain Thomas C. Griffin, of Chicago, the navigator-bombardier, has been put in for an Oak Leaf Cluster in addition to his Distinguished Flying Cross won in the raid on Toyko in May, 1942. The Soldier's Medal has been recommended for the turret gunner, Technical Sergeant Richard K. Ferrill, of Framingham, Mass., and the Oak Leaf Cluster to a previously awarded Airmen's Medal has been asked for the tail-gunner, Sergeant Everett C. Hunt, of New Orleans.

The story that follows is largely as Lieutenant Meyers wrote it in his diary days later as he lay in a British military hospital on the Northern Tunisian Front.

"THE mission for this day was another sea-sweep over the Tunisian port of Sousse, past Tunis and Bizerte, nearly to Sicily and then west, back to friendly territory again. We ate an early breakfast and then got a thorough briefing. Take-off time was moved back to 12:20, however, so we ate lunch, too, before starting out. There were four bombers, led by Major Donald L. Gilbert. Our escort consisted of ten fighters.

"The trip to the coast was quick and uneventful, but as we hit the sea, we sighted two small vessels lying close to shore and made a run on them. Holly, my co-pilot for this mission, had never used a skip-bombing sight before, and our stick of three fell 100 yards short.

"Major Gilbert's bombs scored near misses on both ships, though, so we headed out to sea again, still on the deck (200 ft.) looking for more targets. We'd found that it doesn't pay to stick around over a ship too long. Jerry pilots like to get the Iron Cross by catching a few bombers with twenty or thirty ME-109's.

"Everything went smoothly for a while. Engines were running true and no enemy fighters sighted, but just as we turned on the final leg of the sweep, heading away from Sicily and toward Bizerte, we sighted two large vessels moving south.

"Major Gilbert gave the signal for attack. We came in fast, weaving and changing altitude to evade the barrage of flak they were throwing at us. I got a few quick glances at the boat and saw a lot of fire directed at us and being shot straight up, barrier-like. It was a big cargo liner. When Holly released the bombs all hell broke loose.

"WE got a direct hit just to the right of the metal strip running down the center of the windshield. The plane gave a violent lurch. My right eyeglass (sun glass) was shattered and blood was pouring into my right eye from flak wounds on my forehead.

"Out of my left eye I suddenly saw that the plane was heading for the water and slipping badly as if something was wrong. We leveled off about ten feet above the water, and I found that the rudder was gone and the only means of steering was with the ailerons.

"I got the ship under control and then noticed the right engine was laboring badly, so I cut back the power on it and prayed. About this time I managed a quick glance at Holly. He almost lost consciousness but somehow he hung on.

"The left engine was losing oil fast and I didn't know how long we could stay in the air, so I called Tommy (Captain Griffin) back from the nose and the two gunners up from the rear. Tommy im-

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Looking to the Future

Above is an artist's conception of a four-engined plane of the van Zelm design in flight. Below is a cutaway model of the plane showing how a truck can back up to the opened end of the fuselage for discharging cargo. The insert is a close-up of the folding ramp which may be let down to the ground or a truck body.

AS United Nations forces move steadily forward against the Sicilian ramparts of Fortress Europe under the protection of an air umbrella of cigar-shaped Martin Marauders and deep-bellied Martin Baltimores, thoughts on the home front are turning more and more to the air age of the future. Once this nightmare of war is over, and its mission as a harbinger of death and destruction is accomplished, what part is the airplane destined to play in the making of a new and better world?

Already the picture is beginning to take shape, and as it does, it becomes more and more evident that one of the major tasks assigned to air transport in the post-war set-up will be the cartage of common cargo. Raw materials and perishable foods from South America and the Far East will move to the great manufacturing and distribution centers in a matter of thirty to forty hours. Automobiles and electric refrigerators will be flown into remote areas that are now completely isolated from the outside world. Airborne farm machinery will till the fertile plains of Asia and Africa, assuring such an abundance of food that no man need ever again go hungry.

These are not mere dreams which will never come true. They are just around the corner. The same designers who gave America such deadly bombers as the Baltimore and the Marauder are turning their creative talents to flying freight cars and cargo ships; and just as in 1939 The Glenn L. Martin Company came up with the first bomber designed specifically for this war—the Martin Maryland, which did yeoman service with the French and British in Africa—so today Martin engineers are assuming a position of leadership in the designing of airplanes for the specific purposes of carrying cargo.

Only recently a patent for a radical new type of cargo airplane was granted to Willem D. van Zelm of the Martin Engineering Department by the United States Patent Office, and assigned to The Glenn L. Martin Company. While the demand for a continued and increased output of Martin bombers to finish the job of finishing the Axis precludes the possibility of placing this new ship in production at the present time, designs for both a twin-engined and a four-engined version have long been drawn up awaiting the day when bombers are no longer needed.

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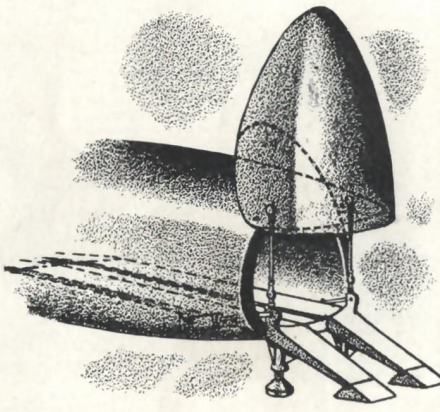
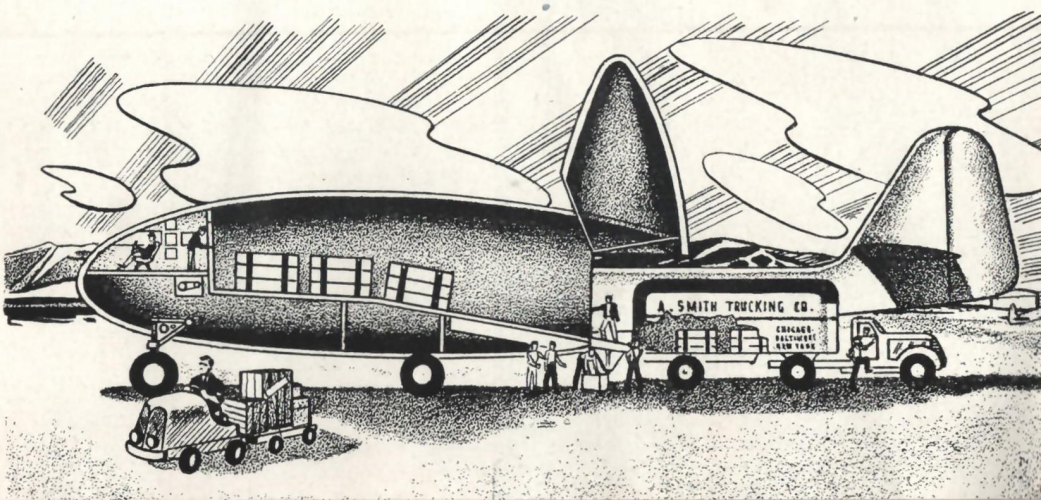
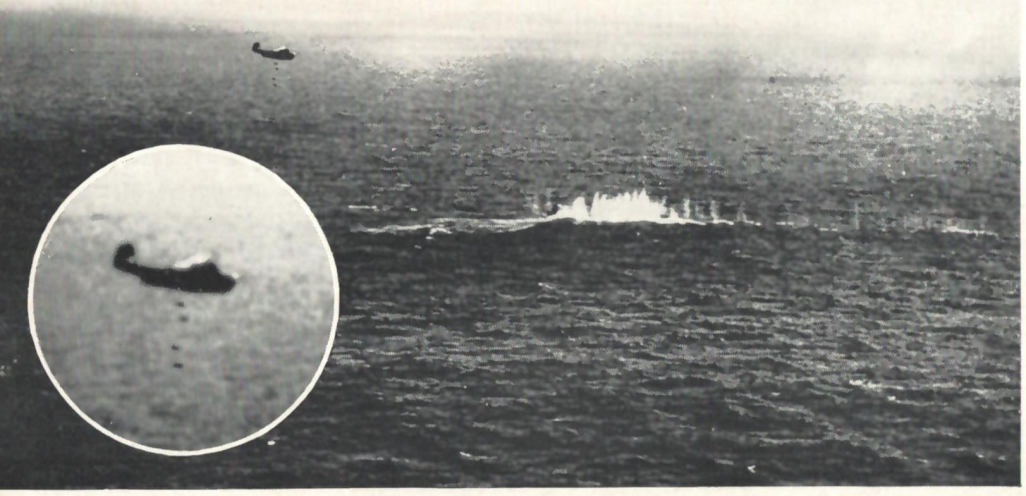
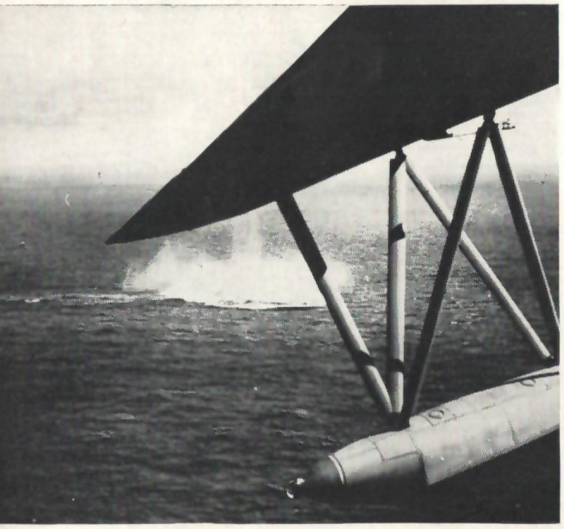
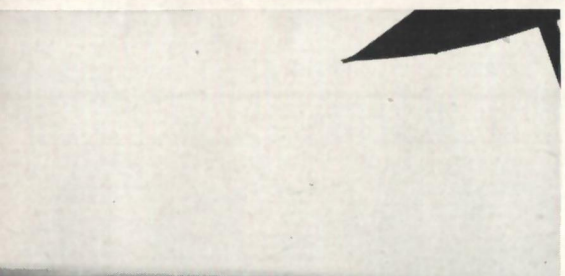






MARINERS ON THE JOB—*These four official U. S. Navy photographs show progressive stages in a recent action when two Martin Mariner patrol bombers crippled a German submarine in the South Atlantic and forced the undersea raider to the surface where it was destroyed by gunfire from two destroyers, the USS Jouett and the USS Moffet. From top to bottom the action is continuous. The four tiny dots under the Mariner's wing are falling bombs, shown more clearly in the insert. When they struck, the tremendous force caused a vast upheaval of water which envelops the enemy submarine. Then an oil slick begins to form behind the Nazi sub as she comes to the surface, while in the bottom picture the sub is beginning to settle as her crew struggles in the water for rafts dropped by the Mariners. One of the planes was piloted by a Baltimorean, Lieutenant Howland S. Davis, USNR.*





A Job Well Done

ON the edge of the Dismal Swamp, sixty miles from Kitty Hawk, North Carolina, where man first mastered the air in a power-driven heavier-than-air flying machine, a Naval Modification Center is today outfitting giant flying boats for special anti-U-boat duty. The number one project at this base operated by the Transition Training Squadron Atlantic is the re-equipping of twin-engined Martin Mariners to keep step with the latest developments in the Navy's ever growing attack on Hitler's submarines.

Craftsmen from three aircraft companies and hundreds of men and women from the surrounding territory, many of whom had never seen an airplane on the ground until six months ago, are now busily engaged in removing equipment rendered obsolete by recent changes in the progress of the war from these gull winged U-boat killers, and replacing with newly designed installations which are making the PBM-3 Mariner an even more deadly nemesis of the pigboat wolfpacks. Spearheading this drive is a group of 150 Martineers headed by Carl E. Bell, Upshur Middleton and Inspection Foreman John H. Bing who were loaned to the Elizabeth City Modification Center a little over a month ago in response to a request from the Navy.

Leaving the comforts of Baltimore for a life which might well be compared with that of an army field base, this group of craftsmen has set up a record of accomplishment in keeping with the best Martin traditions—a record that can be pointed to by every man and woman associated with The Glenn L. Martin Company as an example of what his Company stands for.

When the Martineers arrived, they didn't have to convince anyone of the importance of the work they were doing. Many of the men and women already engaged on the project were residents of Nags Head and Roanoke Island. They had seen cargo vessels and tankers carrying vitally needed supplies blown to pieces before their very eyes by Nazi torpedoes. The concussions of these torpedoes had broken dishes right in their own kitchens. Then PBM-3 Mariners began patrolling this stretch of coast, and today, according to the local residents, submarine sinkings in this particular area are as much a thing of the past as pleasure driving.

But while everyone realized the importance of getting the modified Mariners into active service, the problem of how this was to be done in the necessary quantities still remained to be answered. It was in answering this problem that the men from Middle River distinguished themselves. From the moment of their arrival they pitched in and worked twelve to eighteen hours a day, seven days a week. Foremen, sub-foremen and inspectors forgot their rank and picked up rivet guns or did any other job that needed to be done in order to get the planes out. Largely due to their efforts, the number of airplanes turned out by the Elizabeth City Modification Center in a single day is now greater than the weekly output at the time of their arrival.

THE first thing that the Martineers discovered upon arrival at the North Carolina base was that working conditions as well as living conditions were far different from those they had left at Middle River. Just as they were quartered in the Amphitrite, a renamed obsolete battleship which had been converted into a hotel, so were they faced with the problem of performing a major alteration job on a highly complicated war machine at aircraft factory speed with few of the conveniences of an aircraft factory. Most of the work had to be performed out of doors regardless of the weather due to a shortage of indoor facilities. The Martin men jokingly referred to two of the spots in which they worked as Burma Road and Guadalcanal. The men already engaged on the project were willing workers, but few of them had any aircraft

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Box Kites to Bombers

A PBM-1 taxiing for take-off.

CHAPTER XVIII

MARTIN'S contribution in these eventful 'thirties was not only airplanes. When, in 1936, the Engineering Department brought forth America's first power-operated gun-turret, no one got particularly excited. The public knew nothing about it, for it was secret, but even the Navy, for which it was built, could hardly foresee the vast importance it was to have in a world conflict.

The same thing was true of another development, called the Mareng ("Mar" for Martin, "Eng" for Engineering) Cell. The principal idea at that time was a fuel tank which not only increased carrying capacity, but sliced maintenance time on tanks to a fraction. The cell was simply a synthetic-rubber bag which could be stuffed into a wing aperture, and filled with gasoline as a football bladder is inflated. The thin bag bellied out to every crevice of the aperture, and, if ruptured by accident, or hit by a bullet, could be pulled through a trap in the wing and another stuffed in without removing the wing.

How was anyone to know that this was to be the base on which the nation's first self-sealing (bullet-proof) fuel tank was to be built to answer the crying need of a future war? Here were two enormously important inventions emerging from the same building.

Early in March, 1939, the Final Assembly doors rose, curtain-like, to reveal a lean, powerful bomber of radically new design—the model 167. Martin men looked pridefully on this silver beauty as it was wheeled onto the apron. It was the center of a storm of activity around Middle River. Well under way was a hurry-up project that was to astound not only the aircraft field, but the general industrial world, and particularly the field of building construction. The way was being shown to the industrial miracle that was to take place less than two years later when the lusty young aircraft industry was to become, in a few short months, the greatest of all.

France had awakened suddenly with the drums of the onrushing war beating in her ears. From behind her supposedly-impregnable Maginot Line, she looked fearfully at the skies as Germany began flashing her new air might before a horrified world. With no air force to speak of, with her own industry rotten at the core from the labor strife of the Blum regime and with her people in a woeful state through the long and insiduous divide-and-conquer campaign of Goebbels' propagandists. France screamed to industrial America for help.

"Airplanes—we must have airplanes, quickly, quickly!"

THE Glenn L. Martin Company was one of the very first to hear the call. Under the urgent pleas of French emissaries, Glenn Martin held a council of war with his executives.

It was on Thursday, February 9, 1939, that Martin picked up his telephone and rushed a call through to Albert Kahn, the famed industrial architect, at Detroit.

"Mr. Kahn," he said, "I want to double the size of our plant, at once. We want 440,000 square feet of floor space, and we want it finished in eleven weeks."

There was silence at the other end of the line. Presently Kahn's voice came back over the wire.

"What you ask is impossible, of course, Mr. Martin," he said. "But we'll do it."

That was Thursday. On Friday an airliner disgorged a procession of engineers, led by Kahn, who trooped into the Martin plant. All night long the office and engineering windows of the Middle River plant were jewels of light. On Saturday excavation contractors burst out of executive doors and sped cityward, followed by a harassed steel official, who grabbed the nearest telephone and yelled for long-distance.

"Finish up everything we've got on the books by Monday," he barked. "We're starting on building steel for the Martin plant."

All that day and Sunday the scene was confused. Men crowded in and emerged with contracts. On every one of them had been imposed almost impossible requirements. Each must deliver according to schedule—so much on this date, so much on that; none before, none after.

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Right: The Martin 167 Maryland.

LOTS OF IDEAS—*From the size of those stacks of suggestions, it looks as though the Employees' Suggestion Committee had a job on their hands at their last monthly meeting. Marin-Nebraska's suggestion system has been in effect about a year, and the men on the committee represent a cross section of all phases of our plant operation. Around the table are Arthur Staples, representing factory manufacturing for Norman Stewart; J. J. Novotny, plant equipment and maintenance; J. T. Baker, management representative; George R. DeVisser, methods of procedure and coordination; John Henry, secretary of the committee and supervisor of suggestion investigation; D. A. Kendall, modification and A. E. Houstle, engineering. Not shown in the picture is G. K. Hammer, representing administrative personnel.*

Famed Omaha Inventor Puts All His Wages Into War Bonds

"GUS" Baysdorfer, known to many Nebraskans, has been a resident of Omaha since 1886. When he was eleven years old, he had to leave school. "At twelve," he said, "I had a job —was working every day, and have worked ever since."

He has had his time in the center of the stage. In 1911, the name of Baysdorfer was famous in the infant aviation industry. He and his brother in company with several French fliers, among them Rene Simons, known to fliers and the public as the "Flying Fool" because of his daring, toured the country giving flying exhibitions. When Simons flew over an Illinois city at 3,000 feet, the local paper announced the feat with banner lines in type three inches high.

Baysdorfer flew the first airplane and the first dirigible over Omaha, ships that he and his brother had made. In the annals of Omaha, the name of Baysdorfer is truly famous. Here are a number of "firsts" for which he is famous:

The first automobile to be built in Omaha was built by the Baysdorfers. "Gus" built the first motorcycle in Omaha, in 1899, and the first dirigible in 1907. They were built in the Baysdorfer shop at 18th and Capital Avenue in Omaha. This shop, in those days, and for many years, was the center of all automotive and aviation interests. Among his many inventions are: gasoline lamp, gasoline gauge, Affinity spark plug, (famous in its day), the Baysdorfer clinker tongs and a plug-in electric light socket.

He has seen the birth, adolescence and maturing of the aviation and automotive industries, radio, electric motive power and X-ray. He has personally contributed a great many ideas toward their advancement. The airplane Baysdorfer flew 32 years ago, compared to the modern B-26 bomber which he is helping to assemble in the Martin-Nebraska plant, is as a pigmy compared to a giant.

Gus Baysdorfer, his wife and three daughters, live at 415 South 41st Street in Omaha. They, too, are interested in winning the war and are doing all they can do on the homefront to bring about Victory for Uncle Sam.

"Gus" Baysdorfer, authorizing Charles A. Martin, personnel counsellor to withhold 100 percent of his wages for the purchase of War Bonds through the Martin-Nebraska war bond office.

Martineer Has Two Jobs—Home & Plant

Marian Strupith has worked in after-splice, first shift, since becoming a Martineer in July, 1942. There have been few absences from work during this time in spite of the fact that she holds two jobs, one at the plant, the other at home. Each is equally important, for with the first she is doing a good job in helping to assemble bombers which will be needed when the invasion of Europe gets under way. With the earnings from her first job she finances her second, keeping her family of five together.

First, there's Carol, 11 going on 12, and Betty, 10, comes next. They, with the help of their grandmother, do many of the chores that are needed to keep a lively household in order. Last Sunday they made their first lemon pie and it turned out real good. Then come Patty and Penny, the twins, as alike as two peas in a pod with yellow hair and blue eyes that are always dancing with some new interest. Last but not least in the affections of the household comes Johnnie, who is 4 and the man of the house and who adds

MARIAN STRUPITH

his share to the goings on among the Strupith kids.

Oh yes, and there's the pup—at least there was a pup a short time ago. His lineage may have been questionable to a dog fancier, but to the kids he was about the best pup in the world. They romped all over the back yard and he used to bury succulent bones in the kids' sand pile. One day he took his time going across the street and was slightly nudged by a speeding automobile. The kids joined in the pup's chorus of protest, but it turned out that nothing but the pup's dignity had been damaged. However, in the interests of safety and to eliminate any future accident hazard, the pup was sent to a less populous neighborhood where there were fewer automobiles.

All of the children but Johnnie are in school, but just now they are enjoying vacation.

WORK TIMERS—*Louise Pane and Margie Kunasek, newest addition to the time study group in Industrial Engineering, clocking Deane Parker and Lynne Philley as they install a gun stowage bracket in a nose turret.*

Maintenance Sets Up Fine Record

The job of keeping all other departments functioning smoothly is the tough assignment of the Maintenance Department. Composed of specialists, they are constantly called upon to repair machinery, machine tools and equipment. They also make installations of new equipment and maintain all of the heating, electrical, and ventilating units throughout the plant. In addition, they handle the servicing of the Aqua system for the planes. This is a method of gassing the ships using water pressure in the gasoline.

All rolling stock is handled through the garage maintenance crew and also the internal-transportation equipment. Any machinery requiring lubrication is placed on a schedule, according to type, and is serviced as frequently as required. The manifold systems for the Oxygen, hydrogen, and acetelyn gasses used in welding was installed by the Maintenance Department.

In order to handle all of the maintenance work necessary, the department is broken down into seven groups: machine repairs, pipe fitters, steam fitters, (and plumbers), millwrights, oilers, sheet metal, electricians, and heating and ventilating engineers. A separate equipment stockroom carries all of their material for which any need can be anticipated.

Machine Guns Tested Daily

One of the departments in the main plant that has remained unpublicized for plant and security reasons is the armament section of Ground Test. Located at the Hangars at the airport, and working under leaders, W. M. Staples for the first shift, and Henry Grable for the second shift, they have set up hundreds of ships for test firing.

As high as 1,600 guns a month have been fired and tested during a 60-day period. The barrels after firing must be dismounted from the receivers and cleaned once a day for three days in order to pass the standards set up for delivery and acceptance by the Air Corps.

In a two-week period, the cleaning crew will use over 50,000 barrel-cleaning patches in bringing the guns up to perfection. All guns are checked for 100 per cent accuracy before turning over to the Air Corps.

In doing their job, personnel are constantly designing a new tool or device that will either improve or speed up production. Some of these suggestions have been accepted by the Air Corps for installation on the guns for use on all types of ships.

Martineers are daily reminded of the work that this department is doing when they hear the guns being tested. Every gun is fired with at least ten rounds of live ammunition, and must be in perfect condition before and after firing, to be acceptable. The men that do this actual firing are probably as close as our test pilots in knowing just how tough on the Axis the Martin Marauder can be.

Soldiers Provided Athletic Equipment

Typical athletic and recreational kits going overseas contain several complete baseball and softball outfits, favorite sports of American soldiers, three footballs, two soccer balls, three sets of boxing gloves, two table tennis sets, and various small games sets, equipment worth approximately $180 at wholesale price.

STORK DEPARTMENT

★ To Mr. and Mrs. Robert Zagor (Radio Modification), a daughter, June 20 ★ To Mr. and Mrs. John Owsley (Electrical, Modification), a boy, June 27 ★ To Mr. and Mrs. Gerald Wilds, (Electrical Assembly, Modification), a boy, June 30 ★ To Mr. and Mrs. Harold Gangstead, (Leader on Line 2, Assembly, Modification), a girl, June 30 ★ To Mr. and Mrs. George Thompson (Assembly), a boy, July 2 ★ To Mr. and Mrs. V. A. Newberry (Foreman, Hangar and Flight Inspection), a girl, May 22 ★ To Mr. and Mrs. Oliver Mehsling (Assembly), a boy, June 20.

Orange Blossom Department

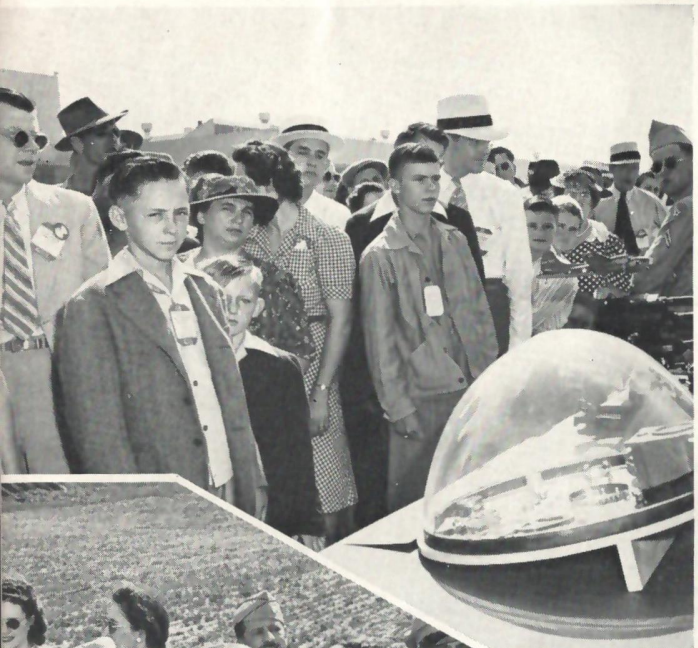
★ Deloris Bockelman (Wing Section, Assembly, Modification) to Wayne Riherd (Leader of Small Parts, Assembly, Modification), on June 5 ★ Cleo Adams to Richard Jerry Louchs (Final Assembly, Modification), on June 5 ★ Carl McIntire (Inspector, Welding & Metal Bench Dept.), to Thelma Parks, on June 24 ★ Mae Meyers (Transportation & Rationing), to Robert J. Prendergast on June 7 ★ Lila Roller (Turret) to 2nd Class Seaman Marvin Williams, on June 13 ★ Wilma E. Houston (Turret) to Staff Sgt. Gifford W. Grabe, on July 4 ★ Jeanette Soukup (Cost & Stores Accounting) to Sgt. Thomas J. Rodis of AAC on June 5 ★ George F. Reed (Asst. General Foreman, Detail Inspection) to Virginia Battaglia (Finishing & Plating), on June 22.

They even brought babies to Martin-Nebraska's Family Day

Clarence Graham, Factory Superintendent, told them all about it.

Many Nebraskans saw their first Martin Marauder.

The many displays proved popular.



Martineers and their guests joined in song.

A part of the crowd e
sing

Nebraska's sun made umbrellas popular.

The WACS and the Army were well represented.

The gates swung ope

They risked sun-burned tonsils to watch the Marauders fly.

The kids enjoyed watching the Martin Marauders.

George Bryant and his Martineers furnished the music.

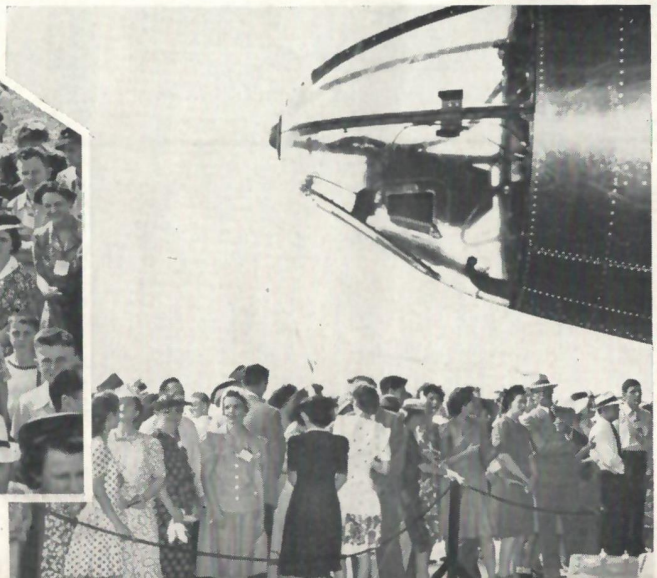
njoyed a community

Some of the 42,000 who attended the show.

Everyone had a good time!

The B-26 won many new friends.

n and crowds came.



Mrs. Leo Bozell and Mrs. Tom Willey were interested spectators.

Noted Etcher Is Now A Martineer

If Mark M. Levings, order writer in Production, ever invites you up to his apartment to see his etchings, by all means go, for there you will find a collection, all of his own creation, of some of the finest etchings in the United States. But you won't be the first to see them. They have been exhibited under the auspices of the Chicago Society of Etchers; Brooklyn Society of Etchers; The American Society of Etchers, as well as other art organizations.

He has held one-man shows at Seattle, Denver, New York and Chicago. He is listed in "Artists Who's Who in America."

ETCHER—*In his spare time, Mark M. Levings, Martineer, may be found at his studio work table producing beautiful etchings for which he is famous and which have brought him acclaim from art societies in all parts of the United States.*

Two of his most famous etchings are "Aquila Court No. One" and "Winter Glory." Both are aqua-tints. With the first he won a gold medal in the Mid-Western Artists exhibition at Kansas City and the Purchase Prize at Los Angeles. Most of his subjects are Nebraska and Mid-Western scenes.

Levings is a former member of the Chicago Society of Etchers, Brooklyn Society of Etchers and the American Society of Etchers. His many articles on print making and the graphic arts have been printed in many magazines devoted to these arts. He also lectured on print making at Chicago, Des Moines, Sioux City and Omaha.

Aside from his career as an artist, Levings has had a great deal of stage experience in amateur theatricals. He has played important roles in Community Playhouse productions and has also aided in their direction.

INNOVATION—*One of the best improvements around the plant in the past month was the installation of refreshment carts in the various aisles on the first and second floors of the main plant, at Modification and at the hangars. With their loads of cooling soft drinks, milk, orange juice, cigarettes and cookies, they have been besieged at every rest period by the Martineers who knock off for ten minutes to enjoy well-deserved relaxation.*

There's just one "bug" in the improvement, there aren't enough carts, enough attendants and sometimes enough drinks for the patrons they draw, for when the signal for rest period sounds, everybody makes a rush for the cart nearest him. The men and women are always orderly, forming lines and waiting their turn to be served.

With the carts and their refreshments and above all, the capable and pleasing manner of the attendants, the Martineers enjoy the two interludes afforded them during the day's work.

Spare Pennies Go Into Bonds

Donna Gibson, third shift dispatch clerk, center sections, has been a Martineer since last January and during that time has bought $1,500 worth of War Bonds. Here's how she did it, and is going to continue to do it for the duration. Aside from the authorized withholding of a generous percentage of her earnings, every penny she doesn't need for running expenses goes into War Bonds.

Then, there is the help she gets from her husband, Delbert, who is a first class private in the Quartermaster Corps in Uncle Sam's army, stationed somewhere in the South Pacific. Every penny he can spare from his pay, he sends back to Donna, and that, too, goes for War Bonds. Delbert has been in the army since May 1942, and since last September has been in the South Pacific.

Donna's particular job in the assembling of B-26's is to keep the craftsmen supplied with parts or materials they may need while working. If they run short, Donna hurries to the store room, withdraws what is necessary and hurries it to the place where it is needed. She also hauls supplies requested on master requisitions.

That is why, when she trundles her truck from the store room loaded with supplies to the craftsmen in the center sections, she always has a bright smile. Her work is not only contributing to the war effort but her dollars are doing the same and she knows that she is doing all she can to back up her husband out there on the fighting front.

Donna says that when Delbert returns they will spend their savings for a new home.

LOOKS AHEAD — *Donna Gibson, third shift dispatch clerk, is looking to the future when her husband will return from the wars. In addition to helping build bombers, Donna invests all her spare money in war bonds.*

Salvage Batteries And Reuse Them

The Materiel Conservation Department has set up, in the Salvage Area, a charger for recovering dry-cell flashlight batteries. Many thousands of batteries have already been reclaimed.

Through the Laboratory Department, it was possible to borrow equipment for this purpose until permanent equipment could be secured. At the present time, the equipment will handle only a few batteries at a time, but the facilities are being expanded to recover approximately four-hundred batteries every five or six hours.

Chasing Axis Old Story for Baltimores

FIELD Marshal Erwin Rommel and his Afrika Korps knew that they were in for a fight to the finish when the British broke through at El Alamein. One of the principal reasons the Nazis knew this was the Martin 187 Baltimore, the most effective attack bomber possessed by the British in Africa.

It was a finish fight in every sense of the word. For the very last bombs to be dropped by the British on the last remnants of the smashed Afrika Korps in the hills back of Bizerte were dropped by Baltimores. That occurred in mid-May of this year.

In one of the most spectacular raids of the war, eighteen Baltimores attacked a strong defensive position of the German 90th Light Infantry Division northeast of Enfidaville. As a direct result a large crop of white flags sprang up from the enemy lines and all organized resistance from the Germans came to an end.

It was finish for Rommel's once mighty army. And the Baltimores were there. During the raid the last bomb—No. 11,111 to be dropped by this attacking wing since the Alamein break-through in November—of the North African fight was included in a final salvo.

Hammering the Axis forces was already an old story to the Baltimore, tough and scrappy successor to the Martin 167 Maryland. By January, 1942, one Maryland Squadron in Libya had downed 100 Nazi Messerschmitts. They helped to defend Malta.

But the speedier and more modern Baltimore came along to take the place of the 167. Built to British specifications, it was soon making itself felt all along the North African Theater.

They began by participating in "daring daylight raids" in June, 1942, near Barce. Employed in a shuttle system, Baltimores helped bring Rommel's advance to a standstill at Alamein. Baltimores, using round-robin offensives in the Western Desert, helped clear the African skies of Axis planes by last autumn. In one day sixteen of these planes made forty-eight such sorties in one day.

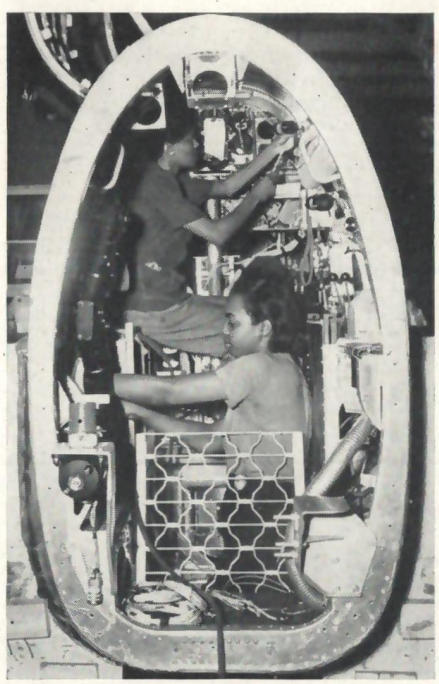
This swift, hard-hitting attack bomber was employed in lightning-like thrusts. It was used in "cheese-cutting" expeditions against queues of Rommel's motor vehicles. It was used in "can-opening" raids on Axis armored vehicles, from the Mareth Line to Gabes.

THEY carried on their fight to Pantelleria, Lampedusa and Sicily, operating from bases at Malta and North Africa. It has been recently announced that this Baltimore is to be fitted out with torpedo and depth-charge carriers so that it can police the Mediterranean and Indian Ocean in addition to its other duties.

WHERE TO DROP THEIR BOMBS—*The scene is a North African air field; the date May 12, 1943. An officer briefs the pilots and crews of R.A.F. Martin 187 Baltimore bombers, one of which is on the background. It was on this date that the last bombs were dropped on Axis resistance in North Africa. Martin Baltimores and Marylands played an important part in the African campaign from the beginning and greatly aided in the rout of Rommel's army.*

From the British Air Commission came the following messages:

"In our message of the 9th June we emphasized the solid operational worth of the Baltimore by citing some of its recent performances. Its role is still of vital importance. May we stress the direct reliance now placed on its maximum supply and urge an even greater output than the present, highly appreciated though it is."



A "Baltimore" nose section takes form in Canton Division.

"Baltimores took a great part with the Eighth Army in the great North African victory from El Agheila to Enfidaville, particularly against the Mareth Line and enemy transports and air fields. They now are still doing this in various other operations. Please again accept our thanks and congratulations and keep them coming."

Thus the Baltimore has come into its own. The men of C Building and Canton, who build the Baltimore, are justly proud of this plane, which can do 350 miles per hour. They are justly proud of the plane which with its new designation as the A-30 the U. S. Army is now obtaining.

On the North African Desert they left a destructive swath of shattered harbors, overturned trucks, pitted landing fields, blasted oil tanks, twisted and useless armored vehicles and tanks, and heaping debris from Axis planes shot down in combat. The Baltimore could take it, dish it out. In fact, it is Rommel's master.

Five Who Came Back

(*Continued from Page 4*)

mediately got out the first-aid kit and began to doctor Holly.

"Tommy gave Holly and me sulfanilamide tablets and poured sulfa powder on the wounds. Funny how you don't feel those things right away. Sergeant Hunt, my flight engineer and tailgunner, came forward and told us our bombs had scored a direct hit and sent the boat to the bottom. Our other two planes had sunk the other ship, too. That gave us all a lift, We had done our job, anyway.

"Hunt also said the rear of the plane was full of holes: rudder shot half away, elevators in bad shape, bomb bay doors still open and hydraulic fluid all over the place. Sergeant Ferrill said there was a hole as big as his head directly behind his turret.

"All this time I'd been trying to keep the formation in sight. We were getting only half power from the right engine, with the prop governor shot away and another shell up through the middle of it. The left engine was carrying the load but losing oil fast. I contacted the Major on the radio and told him we couldn't stay up long and would try to stay on the coast and land at Bone instead of going inland over the mountains with the formation. He called back, "OK and good luck," and there we were, a crippled bomber alone in enemy territory. But then we noticed that three escorts were sticking with us. That would help a lot. It was swell of them.

"Just then, when I'd calculated we were past enemy lines and was beginning to breathe a little easier, the left engine —the only good one—cut dead. The ship yawed violently to the left and seemed to stagger. I cut back the throttles and yelled—"Here we go, gang," as we started down toward the water.

"We had just passed around the end of a rocky promontory and were farther from shore than I wanted to be. When the engine cut, we were at 250 feet, so it didn't take long to get down. As we neared the water, I brought the nose up in a slight stall position, in order to cut down the speed at the instant of impact. I yelled to Holly and Sergeant Hunt to jettison the escape hatches above the cockpit just before we hit the water.

"There was a terrific jar as the ship hit water and the nose went under almost immediately. Before I could take my hands off the wheel, the water was over my head in the pilots' compartment. Holding my breath and fighting against panic, I unbuckled my safety belt and started out the top. Groping in the black water I found the hatch had slammed shut. Using all the strength I could muster in both arms I managed to shove it open against the pressure of the water above. I surged to the surface to find the plane still partially afloat but going down by the nose. The tail had broken off in two pieces.

NEW OFFICERS—*Snapped just after the annual election are the incoming and outgoing officials of Glenmar Post 148 of the American Legion. Seated, left to right: Elmer S. Gesswein, re-elected Historian; Russell Samllwood, outgoing Post Chaplain; Warren Hufman, re-elected second Vice-Commander; Louis Barrett, re-elected first Vice-Commander; Eugene Davis, re-elected Adjutant, and Stanley Kostos, outgoing Finance Officer. Standing, left to right: George Duvall, elected Post Chaplain; George Manning, elected Sergeant-at-Arms; Marion Cooper, outgoing Sergeant-at-Arms; Charles S. Hurd, elected Commander; Roland W. Beaumont, outgoing Commander; Carl A. Booton, re-elected Post Service Officer, and Bernie Pryor, elected Finance Officer.*

"I PULLED the two cords on my Mae West and breathed a sigh of relief when it filled immediately. I looked around and found four bobbing heads and knew everyone had gotten out. From the time we hit water until we were all out, had taken no more than twenty-five seconds, but I had lived a lifetime in that short period. In another thirty or forty seconds the plane had disappeared except for a shattered piece of tail structure.

"Of the half-mile swim to shore I can say little, except that it was very painful. The escort continued to zoom over head for a while, but finally banked around and headed for home. It took us fully an hour to make our way to shore, where two Arabs helped pull us up on the rocky promontory. The combination of shock, wounds, and cold reduced Holly and myself to a state of helplessness. The other three men were also suffering from cold and shock, so when the Arabs built a large fire in the lee of a hill, we welcomed it. We were too miserable to worry about strafing enemy planes.

"I talked to the Arabs (thank goodness for my French) and learned that we were only twelve miles from enemy territory. There was an Arab village a mile or so away, and a detachment of French Marines four miles farther up the coast.

"As soon as Tommy had eaten, he took one of the Arabs as a guide and set off down the coast to find the French Marines. He was back in three hours, bringing antiseptic wash, iodine and gauze. Even more welcome were the biscuits, chocolates and cigarettes he had received from the French.

"The next morning a stretcher team from the British field ambulance unit arrived and there followed more antiseptics, bandages and restoratives. Then after a very palatable lunch of Arabian couscous (ground corn), chicken, and some sort of pancakes, we were taken down the coast to the Marines' station, a cave in the side of a hill which gave them protection from enemy strafing.

"A boat was supposed to come over from Bone for us that afternoon, but it never arrived, so we spent another bad night in a cave. The next morning a fresh British stretcher team arrived, and they decided to carry us back over the mountains.

"We finally reached the British field hospital at seven-thirty P.M. more than two days after the crash. They operated on us that night, and from the effects of the anaesthetic I got quite a lot of sleep. They cut a lot of flak out of my right arm and some out of the left thigh. The rest of it in my right thigh, face, neck, and eyebrows, I'm still carrying around with me. They say it will probably do no harm.

"Holly's hand will take months to heal, and his right eye will need a lot of special treatment. His eye will probably be O.K., though. Thank God for that. He won't fly for a long time, but I'll be back on the job soon."

★ ★ ★

In Air Corps

Edwin F. Malone, former Canton Division inspector, is now an Air Corps Cadet at the 51st College Training Detachment at Rochester, N. Y. A graduate of Franklin and Marshall College and resident of Lancaster, Pa., he is now a staff member of the "Gremlin," pre-flight cadet publication.

A Job Well Done

(*Continued from Page* 6)

building experience. The large majority were farmers and lumber workers.

At first the Martin men were distributed among these inexperienced employees. Under their guidance the local employees were instructed in the complex duties of aircraft builders and inspectors. In addition the Martin men offered many suggestions for introducing factory methods despite field base conditions. With the help of Anthony Farinacci, Industrial Engineering, Joseph W. Minnigan, Engineering, and George Foy and Charles Glenn of the Martin Production Department, a regular production line was set up with specific operations assigned to specific stations and airplanes moved from station to station at regular intervals. Special badges were issued to each employee indicating the station to which he was assigned in order to overcome the tendency of the local men and women to drop their own job and go over and help a friend or neighbor.

As the production line became organized and began to approach the speed with which the big Mariners were turned out at Middle River, the Martin men were taken off the line and organized into two utility squads, one for the day shift and one for the night shift. With the organization of these squads it became possible to move the ships on schedule, regardless of whether the operations assigned to each station had been completed. Any work which had not been finished at the assigned station was left until the ship came off the line and was then taken care of by the utility squads. This called for great versatility on the part of the Martin men, but they once again demonstrated the thoroughness of the training they had received at Middle River by rising to every occasion in a way that is amply demonstrated by the results which have been obtained. A 650 per cent increase in output is no mean accomplishment.

THE Elizabeth City Martineers did not stop, however, with performing difficult jobs under adverse conditions and instructing others with less experience how to perform these same operations. In addition, they took over many of the duties that would have been handled at Middle River by special departments. Faced at the beginning with the problem of building parts and making installations without benefit of blueprints, they rose to the occasion, but rather than ask less experienced workmen to put up with these same difficulties, they organized a blueprint file on their own initiative. Many similar innovations have been made by the Martineers. Rivets are now being dispensed from iceboxes and storage racks instead of being cut to order as needed. A material control system has been established to insure a steady flow of parts to where they are needed.

Recently the Martin group organized its own tool group, and is now designing and building special tools to be used in the Elizabeth City installations.

Particular mention should be made of the part played by Martin supervisors in the Elizabeth City undertaking. Not only have they been responsible for many of the production improvements, but in addition they have taken on duties which would ordinarily be handled by the Personnel Department in looking after the welfare of their men. Carl Bell, Upshur Middleton and John Bing have seen to it that the Martineers are well taken care of. Members of the Martin group who took sick found these three men always ready to see that they did not suffer from lack of care or medical attention. Bell, Middleton and Bing have handled gasoline rationing problems. They saw to it that adequate transportation facilities were provided between Elizabeth City and the base. They made arrangements with the Amphitrite Hotel to keep its dining room open from one to six in the morning for the benefit of the second shift, an arrangement whose full importance can be understood only when one realizes that in Elizabeth City the food and manpower shortage is so acute that even during the day restaurants are open only during specified eating hours. On the Fourth of July the Martin supervisors even went so far as to arrange transportation back to their homes and families for those Martineers who could be spared.

HEADS WRITERS ASSOCIATION. ***Wayne Parrish, of Washington, one of the best known men in the aviation industry, has been elected president of the Aviation Writers Association. Editor and publisher of American Aviation Associates, Mr. Parrish succeeded Sloan Taylor, aviation editor of the New York Daily News.***

IN relating the accomplishments of the Elizabeth City Martineers one should not overlook the cooperation they received from the Transition Training Squadron Atlantic or from representatives of Consolidated Aircraft which is operating the Elizabeth City base. Members of the Martin group have repeatedly pointed out that this is a factor that cannot be overemphasized. Nothing they asked from either the Navy or Consolidated was denied. If they wanted to set up a tool room, they were given the necessary space and equipment. If they thought production efficiency could be improved by issuing special red badges to identify supervisors, the badges were issued. What hardships they did endure were due to the location of the base and the nature of the undertaking. Modifying airplanes according to the latest war developments is a vastly different proposition from building bombers in a modern aircraft factory.

Soon the greater part of the Martin group at Elizabeth City will be returning to Baltimore. This particular job will have been finished, and they will go on to new and more important work in the service of their country. But what they accomplished will not be quickly forgotten, for in addition to handling the work they were sent down to handle, they performed the far more difficult task of helping to set up an organization that will enable others to carry on.

And when these men do return, they will bring back with them a first hand report of the important role the PBM-3 Mariner is playing in the United Nations war effort. They have been located in a critical combat zone, a zone where the Nazi U-boat menace gravely threatened our whole war program. With their own eyes these Martineers have had a chance to see the PBM-3 Mariners which they helped to build at the Martin factories, and which they were currently modifying at Elizabeth City, take off from the nearby Coast Guard base on the patrols which have dispelled this menace and made Nags Head a point which need no longer be dreaded by our merchant seaman.

"Marty Mariner"

"Say, Bud, which way to Elizabeth City? My wings need modification."

WOMEN at war

Many Recreations Offered to Women

THERE is no better indication of the variety of personalities represented by women at Martin's than the great number of leisure time activities in which they engage. Fortunately, the desire to express themselves and to enjoy their favorites sports and hobbies is made easy through the comprehensive women's recreational program.

There are activities to suit every individual. Equally as important, they are in progress around the clock. Second and third shift people can dance, swim or see movies with congenial groups with the same convenience as their first shift friends. Second shift jitterbugs can start their rug cutting at 1:00 A.M. while third shifters begin some of their days with coffee and doughnuts and a swing band at 6:30 A.M. Among the most talked about outings of the summer have been the morning swimming parties held by night shift girls. Talk about having your cake and eating it too! How about the gals who hold down war jobs and still manage to get the loveliest of tans?

So look over the schedule, girls, and pick your group. Do you belong in the Sunrise Club or do you go for midnight movies? Ask your personnel counselor. She can help you find your place.

If you love the out-of-doors—as do so many Martin women—there are a number of clubs to fill the bill. The hiking club is one of the most popular with their twilight jaunts and weiner roasts. Then there is the soft ball group, which, incidentally, will soon be competing in a well known industrial league. Rivalling each other in popularity are tennis, archery, cycling, and bowling.

There is a glee club, dramatic club, folk dancing, classes in physical fitness, first aid and aeronautics. This last mentioned is being formed especially for women who expect to fly some day, women who want now to begin learning the fundamentals. The course will include training in ground crew work.

At the head of each club or activity are several volunteer leaders. They are women who know and love that particular field and who are giving freely and enthusiastically of their time and energy. They are women who not only know how to enjoy their own leisure hours but also know how to help others enjoy theirs.

AND don't let the transportation bugaboo get you down. While there are occasional big get-togethers, the emphasis is on many small groups meeting in every section of the city. There are Martin people living in every part of Baltimore. If your favorite club does not have a group in your part of town, why not do something about it? Wherever there is a group of women interested in any one of the variety of leisure time activities, the volunteer leaders are more than willing to organize a club.

Some of the clubs are large; some are small. More are springing up like mushrooms. Their origin is interesting.

Whenever a section of the city is discovered that does not have at least one Martin club or activity in progress, a group of volunteers representing all the different activities meet. Martin women in the community are invited and, during the course of a few hours of fun and talk, an idea is gained as to what activity appeals to the greatest number. It might be folk dancing or it may be out-of-door games. Whatever it is, the volunteer leaders try to leave with that group the beginnings of the most suitable activity for them.

Care For Your Vacuum Cleaner

Not long after the entrance of the vacuum cleaner into the life of the average housekeeper, it came to be taken for granted. But not so now. It is a valuable tool to be cared for and pampered, an implement whose life has to be prolonged for the duration. Care of this kind is made up of many small things.

Short cleanings at frequent intervals are better than one longer cleaning. The results are better for both rug and vacuum. Be sure the switch is "off" before connecting the cleaner cord to a wall outlet. Keep the cord out of the way—don't step on it, run the vacuum over it, or use it to drag the cleaner.

Pick up pins and other metal objects, pieces of string, large pieces of cloth or paper before running the vacuum. It *will* do it for you but *shouldn't*. Sharp objects can cut the belt and nick or bend the fan. String is likely to wind around the rotating roll and cut the belt.

Keep the dirt container and filter clean. Failure to do this cuts down suction power of your vacuum. Follow manufacturer's directions for cleaning and changing filters.

A good way to clean a bag: Remove carefully from the cleaner. Empty by turning opening down on a large piece of paper and shaking gently. Occasionally turn the cloth bag inside out for a good brushing with a stiff brush. Be careful not to puncture the bag. It won't stand washing.

To keep from lifting edge and fringe of rugs, lower handle a little to cleaner pull back. This breaks the seal long enough to prevent suction of edges. To clean edges well, do not let the nozzle overlap edges as this breaks suction. Keep cleaner just within side of rug.

Before putting cleaner away after use, be sure it is shipshape. Besides emptying the dirt container, see that bristles and ends of the rotating roll are free of hair and thread.

IN THE SWIM—*It was a lively party that the second shift girls held at Patterson Park the other day. One of the first activities of the new women's recreation program, the swimming party went over with a big splash. Swimming was the most popular of several sports—softball and other games—and one which the girls plan to repeat very soon.*

NUTRITION QUIZ

ANSWERS AT BOTTOM OF PAGE

1. Darker colored green vegetables are more desirable than lighter colored ones. Because:

a☐ They keep their color better in cooking.
b☐ They cost less.
c☐ Their deeper color is indicative of more vitamins.

2. Frozen or frosted vegetables retain their full nutritive value as long as:

a☐ They are thawed out before cooking.
b☐ They are not thawed out.
c☐ They are cooked promptly after purchasing:

3. The following method will make meat most tender.

a☐ Frying. b☐ Roasting. c☐ Braising.

4. To preserve the protein content of eggs, cheese and milk, they should be cooked at:

a☐ Low temperature.
b☐ High temperature.

5. In buying meat with bone an adequate serving for each person is:

a☐ 1 pound b☐ ⅓ pound c☐ ½ pound

6. In buying meat without bone the adequate quantity for each person should be:

a☐ 1 pound b☐ ¼ pound c☐ ¾ pound

★ ★ ★

The three C's for meat conservation: Clean; Cold; Covered.

TRIES ANCIENT SPORT—*Esther Bilane, first shift maintenance employee in Army Division, tries out archery, one of the new activities being sponsored by the women's recreation program.*

The Lunch Box

"A goofy lunch pulls your punch!"

That is the slogan on one of a series of three new posters designed by Walt Disney for use in war plants.

That tired feeling that gets you in hot weather—as shown on the Walt Disney poster—when you eat a goofy lunch may be due to the fact that the lunch does not contain something "you should have et." It is a snack that has a lack. It lacks foods you need for health protection and energy to do your job.

If you choose a good lunch at the cafeteria or food wagon, you can avoid a goofy lunch.

If you bring a box lunch, be sure it is a good box lunch. A half-pint of milk, two substantial sandwiches on whole wheat or enriched bread, a raw carrot or tomato and an orange, cookies or other dessert makes a good box lunch.

If red stamps are scarce for meat and cheese sandwiches, the Nutrition in Industry Division, Food Distribution Administration, suggests fillings of peanut butter, baked beans, eggs, poultry or cottage cheese.

Peanut butter, cottage cheese and salad sandwiches save red stamp points as they are unrationed fillings.

Some folks like to make their own sandwiches just before eating them—a la Dagwood. For this type of packed lunch, salad dressing can be carried in a small glass bottle with screw top. It can be packed in the bottom of the lunch box with a knife for spreading. Lettuce can be wrapped in waxed paper — a bread wrapper will do—and added with salad dressing to the buttered bread with sandwich filling. This prevents sandwiches getting limp and soggy in hot weather.

Another hot weather tip for the packed lunch eater who likes salads is to put chopped raw vegetable or fruit salads in waxed paper containers with paper tops or in a glass bottle with screw top, and pack a fork in the lunch box.

Something crispy and something colorful in a packed lunch gives appetite appeal. Raw, crispy carrot sticks are a good choice. If washed and kept in the refrigerator until packed in waxed paper in the lunch box, they will taste and look good. A whole tomato also adds color and zest to a packed lunch in hot weather.

Good hot weather beverages for packed lunches are cold milk, citrus fruit and other fruit juices or tomato juice. These are the beverages that protect health. If the vacuum bottle is rinsed in very cold water before the ice cold beverage is placed in the bottle, it will keep cold for many hours.

Both cold and hot lunches need to be good lunches, not goofy lunches that will cause fatigue and accidents.

★ ★ ★

Answers to Nutrition Quiz

1—c. 2—b. 3—c. 4—a. 5—c. 6—b.

EASY DOES IT—*"Cookie" Stallard, 14-month-old son of Mr. and Mrs. Kelson Stallard, takes his hot weather with a big smile and little else. His father works in Final Assembly, Army Division, second shift, and the family lives in one of the trailer camps.*

Wartime Hints

Do you get tired of having to press a dress, blouse or skirt every time you start to dress? Then don't crowd them in the closet or clothes bag. Every clothes bag has room for just so many garments. Don't overcrowd. Spread your garments out more and avoid that second pressing.

Dread to go home to a warm house? It doesn't take long to open it up and let it fill with fresh air, but routing the heat takes longer. A good remedy is to pull the dark shades all the way down before leaving in the morning, particularly in the rooms that get the strongest sun. Try it and see how much this simple device reduces the heat.

Linens should be pampered, especially now when all household goods need to be prolonged as much as possible. If you are fortunate enough to have extra ones on the shelf, rotate them so that the same sheets are not used each time. If possible fold, or have them folded, differently every time. They wear longer. If you have extra special linens which you want to store for a while, roll them on a tube, wrap in paper, and label.

Looking to the Future

(*Continued from Page 5*)

THE new van Zelm cargo airplane differs from aircraft now being used for that purpose in that it has been specifically designed for cargo carrying and is not merely an adaption of a conventional airplane. Not only is it capable of carrying the tonnage involved, but its design eliminates many of the difficulties now encountered in the handling of aerial freight. Structural members have been planned to provide easy access to the cargo compartment. Loading and unloading equipment has been integrally incorporated. Ramps and winches for running self-powered freight and hauling other cargo aboard and stowing it without the use of outside cranes or loaders are provided within the plane itself, thus opening the way for the rapid handling of cargo at any airfield where the plane can get in and get out, and making aerial freight service economically practical even to areas where the volume of business did not warrant the elaborate loading equipment now required.

The two versions of the van Zelm cargo airplane for which designs have already been drawn up by Martin engineers are respectively a two and four engined low-wing monoplane with a tricycle landing gear. Unlike the conventional transport of the present day, however, the tail surfaces or empennage are not attached to the fuselage, but are supported by twin booms running out from the wings. This leaves the aft end of the fuselage in which the cargo compartment is located clear to be opened up like a door by means of hydraulic arms for the easy loading of freight.

The same hydraulic mechanism used to raise this cargo door also extends a collapsible loading ramp which can be adjusted to run either to the ground or to the back platform of a truck. This ramp is equipped with adjustable jacks which run to the ground from a point close to where the ramp hinges to the body of the plane. These jacks sustain the weight of the cargo during the time that it is on the ramp, relieving the plane, itself, of this strain. Due to the tricycle landing gear, the plane remains in level or flight position throughout the loading operation, simplifying the task of stowing cargo so that it does not tend to shift when the flight begins.

AUTOMOBILES, wagons, trailers and other wheeled freight can be run or pushed directly up the ramp into the plane, and since they are loaded in through the tail along the main axis of the fuselage, little or no juggling is required once they are aboard. The whole operation, in fact, is as simple as and similar to the loading of automobiles on a ferryboat. In the case of boxed freight, a winch is provided, which is operated from the pilots' compartment, for drawing it aboard. Once the loading operation has been completed, the same hydraulic mechanism used to open the tail door withdraws the ramp back into the plane, lowers the after end of the tail into place and locks it in closed position.

There are no limits as to maximum size or cargo carrying capacity in the van Zelm design. Similarly, wing area, wing position, number of motors and overall dimensions can be varied just as in present types of aircraft in accordance with the same governing factors. In the two models designed to date by Martin engineers, the smaller two engined version has a gross weight of 60,000 pounds, which would make it larger than either the Martin Mariner patrol bomber or the famous China Clipper, while the larger four engined version runs to a gross weight of 86,000 pounds and would be capable of carrying a useful load of 36,870 pounds of which 27,000 pounds or 13½ tons would be cargo payload.

Not as radical in design as the van Zelm cargo carrier, but destined to play as great or greater a role in the drama of aerial freight are the famous Martin flying boats—the Mars, the 125 ton Leviathan, and the 250 ton monster, as yet unnamed, which is now taking form on the drawing boards of Martin engineers. The first of these flying Liberty ships—the Martin Mars—has already bridged the chasm between dreams and reality. Raising its 70 ton bulk off the waters of Chesapeake Bay with the seeming ease of a seagull, it has proved beyond doubt in repeated tests the practicality of the super flying boat, and has demonstrated that it is, in fact, the most efficient aircraft per pound of material, per horsepower and per gallon of fuel that the world has ever known.

The age of aerial destruction will soon be over, and the cargo air age will arise to take its place. When this new era does dawn, the men and women of The Glenn L. Martin Company will be waiting for it, prepared to assume the same position of leadership that they have held in building the bombers which are making this new era possible by blasting the Axis off the face of the earth.

THIS MONTH'S COVER

Taken from a speedboat heading down Middle River, the cover picture, a Kodachrome, shows a PBM-3 Mariner taxiing away from the ramp preparatory to taking off for a test flight.

The ship was almost opposite Stansbury Manor Beach when the shot was made. The ramp and "D" Building show faintly in the background.

Box Kites to Bombers

(*Continued from Page 7*)

It was a mighty challenge to American industry. It was met in every detail.

On Monday an incredible corps of excavating machinery moved in and the land east of B Building looked like a battlefield. Railroad spurs were run in, and as day followed day piles of materials were unloaded on the siding. Never were there big piles; only as much as could be gobbled up by working crews at once. Foundation concrete ran in rivers. Raw, red steel rose like magic. Floors, ceiling beams, roofing—all appeared with such astounding rapidity that it seemed the days and weeks had been telescoped. Only one contractor—an electrical fixtures firm—got off the schedule, and in the heat of enthusiasm sent in its shipments three weeks ahead of time. They were promptly sent back, with instructions to wait for delivery date. Martin couldn't bother with storing things in those day.

FIELD marshal of this remarkable achievement was Paul E. Tignor, Martin's vigorous field engineer, riding herd on contractors and suppliers, pushing, goading, pleading, and bedeviling to get the job done on time.

On the seventy-seventh day—the deadline—the first steps in manufacture of the Model 167 were being taken at one end of the huge building while frantic builders were closing in the other end. A world record of building construction had been set.

And, not to be outdone, the Martin engineers and craftsmen launched forth for another record—a record that saw the first airplane of the 167 flown six months from drawing board, and the entire first order of 115 of these ships for the French Government completed in ten months and three days. It was an unparalleled performance all the way around.

She was a beauty—that lithe attack bomber, with her high speed, her bomb load of almost a ton, her wing guns which allowed her to fight like a pursuit. She was to play a spectacular part in the war that was coming. She was to be the tower of strength of both the French and the British air forces on African soil.

And while all this was going on, the tempo in the B Building was increasing. The big PBM-1 20-ton patrol bombers were progressing on the largest aircraft assembly floor in the world.

As 1939 waned and the volcano of war that had been smoldering in Europe burst into flame, The Glenn L. Martin Company was the largest aircraft company in the United States. It had performed an amazing feat of expansion and engineering and production. And then it had turned to perform another miracle of training. At the turn of the year only 3,500 craftsmen were employed at the Baltimore plant. By the end of the year there were 13,000! A training program without precedent had been carried to a successful conclusion.

And in the month that war broke, a great Martin bomber design won an Army competition.

(Martin's expansion for war production and the debut of great airplanes will be described in the next issue.)

A BOMBER IS BORN

SEEING IT THROUGH

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PREVIOUS articles on this page have sought to give an over-all picture of how a Martin bomber is designed and built in quantity for our men in the fighting forces. The purpose of this, the final article of the series, is two-fold. There will be a brief review of the entire process, followed by an explanation of how Martin employees, working through their Service Department, back up their planes on whatever continent they may be.

A Martin bomber begins to come into being when the Army, for instance, finds through contact with the enemy that a certain type of ship is needed, and that Martin should build it. The Army sends us a Type Specification, which outlines the characteristics and performance necessary to accomplish the desired military mission.

Generally speaking, the entire Martin organization is soon bearing a hand in one way or another in the job to be done. Winning a war takes many different kinds of abilities, pulling together in the closest teamwork. Nowhere are those numerous abilities and that close teamwork better illustrated than in the way the job of designing and building a Martin bomber is carried forward.

The major departments of the organization team up on the job, and each one of the various groups that come under them is going to have, either directly or indirectly, a share in the task. Broadly stated, Engineering will design the plane and Manufacturing will gather the tools and materials and build it. Inspection will double-check to make sure that every detail of the plane—as well as the whole plane itself—conforms in every way to the drawings and specifications. Contract Administration will look after the multitudinous financial details that go into the job of designing and building hundreds of planes. And the Service Department will follow those planes out to the airfields and fighting fronts and help see they do the job they were sent out to do.

Working in conjunction with representatives of Manufacturing and Inspection, Engineers design the plane first in broad outline, then in its major assemblies, and finally down to its smallest detail. Meanwhile branches of the Manufacturing Department are at work on the job of gathering materials, arranging for subcontracted items, designing or buying tools, and beginning the actual construction of the planes. Under the watchful eyes and instruments of Inspection passes each piece of material, each subcontracted item, each tool, and each job of fabrication and assembly—right up to the completed planes.

THE finished planes are ground-tested, then flight tested, before being turned over to pilots of the Ferry Command. Though the planes are now in Army hands, Martin still stands behind them. Men of the Service Department are stationed everywhere in the world where the planes go in quantity. That means Martin men at depots and training bases in this country, and at warfronts pretty much all over the globe.

These Martin Service men are carefully selected and trained, for they must know the plane from wingtip to wingtip and from nose to tail. Included in their training are experience in Body, Surface & Floats and Final Assembly; days and weeks on the flight line. At the bases in this country and in the combat zones abroad, they are going to need all the training and ingenuity they can muster, for their tasks will be many and varied.

Theoretically, they are at the bases and in the combat zones simply as technicians whom Army engineering officers may consult as to any problems that may come up in connection with the planes. As a matter of fact, however, they serve not only as technicians and consultants, but also in many cases as instructors, practical engineers, trouble shooters, emergency mechanics, and general all-around fast thinkers. At the same time, they are liaison men between our planes—often thousands of miles away from the factories—and the men and women back here building more and more of the planes.

Incidentally, Service Department employees also stand behind another famed Martin product — power-operated turrets. Besides being an outstanding pioneer in the development of power-operated turrets, The Glenn L. Martin Company is probably the largest producer of them in America, and Martin turrets are used not only on our planes, but also on those of several other manufacturers. As in the case of our planes, specially-trained Service Department employees are on hand wherever planes using our turrets are present in quantity.

For convenience in explaining their activities and accomplishments, Service Department employees may be divided into three groups. One, which stays here at the plants, might be called the brain or nerve-center of the department. Another is distributed among the various airfields in this country where the planes are present in force; the third group is scattered all over the world. Those in the office here correlate and direct the work of the other two groups. All three are working together to accomplish one thing—seeing that the bombers so carefully designed and built by their fellow-employees do their job under no matter what conditions of use, climate, or combat.

MUCH of the instructing that Martin Service men do is at bases in this country. As the planes arrive in quantity at the training bases, crews fresh from flying and ground schools come in to learn how to handle and service them. Each plane is assigned to a particular ground crew and a particular flying crew—pilot, co-pilot, navigator, radio operator and gunners. The plane becomes their "baby"; they fly and service it every day. One of the jobs of the Martin Service men present is to work along with the ground crew, helping the Army mechanics familiarize themselves with the plane's individual characteristics. At the same time they are available to help "shoot" any troubles that may come up, to work in conjunction with the engineering officer of the base, to send back to the Service Department office here reports on any new kind of maneuver that is going to require engineering changes—in short, they are there as men who know the plane inside out and what to do about anything that comes up.

Martin Service men abroad are usually directly behind the front lines. They are there as technicians and consultants, but there again they are much more than technicians and consultants. As at the bases in this country, they help in the instruction of ground crews. And they have been known to do things like pick up an ax and cut bomb bay parts out of tropical trees; they have been known to cut up old gasoline tins to patch shot-up wings; they have been known to use bent palm trees as derricks to lift out a damaged powerplant or turret and put it back in condition. And these things often are done in pretty uncomfortable proximity to the enemy.

ARMY'S B-26 MARAUDER

BRITAIN'S BALTIMORE

THEY'RE WRITING HEADLINES
WITH A

MARTIN MARAUDER

ALEX . . . JOE . . . STEVE . . . ED . . . and BILL. You know them. Alex, who used to bring your groceries . . . Joe . . . Steve . . . Ed and Bill, who used to go with little Sally Miller. Likeable, quick-to-laugh young Americans. Give them the best aerial schooling in the world, put them in a rocket-fast, Martin B-26 Marauder, and they're a flyin', fightin' team that wins!

There's a reason for this, of course. Aircraft are highly complicated mechanical devices . . . and these boys were fitting together gadgets, tinkering with tools, racing old jalopies, when their adversaries were learning to "heil" and "banzai." They've got the feel of speed, the mechanical know-how that makes natural pilots, gunners and bombardiers.

This same technical skill gives America fighting planes like the Martin B-26 Marauder. Sleek, graceful, packed with speed, power and punch, it's the kind of plane that makes young America's eyes light up . . . makes him say, "Put me down for the Air Force!"

What's more, American technical skill is going to play a major role in fashioning the future. Already Martin has designed giant airliners of 125 or more tons . . . mighty ships that will bring distant nations to within hours of your doorstep. At the same time, our Army and Navy airmen, imbued with the thrill of flight, the love of speed, are resolving never to be shackled to earth again. They're in the air . . . to stay!

Alex... Joe... Steve... Ed... and Bill.
They're doing more than win a war. They're building a world that will take your breath away.

THE GLENN L. MARTIN CO., BALTIMORE
THE GLENN L. MARTIN-NEBRASKA COMPANY—OMAHA

NAVY'S MARTIN TRANSPORT

NAVY'S MARINER PATROL BOMBER

Martin
AIRCRAFT

Builders of Dependable Aircraft Since 1909